

REMARKS/ARGUMENTS

This communication is in response to the Final Office Action dated April 25, 2007. Claims 21-32 remain pending in this application with claims 21 and 29 being the only independent claims. Reconsideration in view of the arguments presented below is respectfully requested.

Claims 21-26 and 28-32 are rejected under 35 U.S.C. §102(e) as anticipated by EP Patent No. 1257096 A2 (Masseroni et al.).

Claim 27 is rejected under 35 U.S.C. §103(a) as obvious over Masseroni et al. in view of U.S. Patent No. 6,747,962 (Lintulampi et al.).

Applicants respectfully traverse the outstanding prior art rejections for the reasons provided below.

Independent Claims 21 & 29

Claim 21 is directed to “A method for detecting multiuser behavior on an aerial interface in GPRS and EGPRS mobile radio systems” including the step of “acquiring and evaluating during a transmission of subscriber data on an aerial interface, additional information contained in subscriber data by a device on a network side and/or a subscriber side, both in the uplink and the downlink; and identifying a number of parallel subscribers in used timeslots based on the additional information.” (emphasis added)

The Examiner in his response to Applicants’ arguments with respect to claims 21 and 29 maintains that Masseroni discloses the limitation of “identifying a number of parallel subscribers in used timeslots based on the additional information”, as claimed. Specifically, the Examiner states “Masseroni does disclose this limitation where he discloses unambiguously discriminating up to eight user in a time slot.” (April 25 2007 Final Office Action: page 2, lines 12-13)(emphasis added) Applicants respectfully disagree with the Examiner’s position. As acknowledged by the Examiner in his remarks, Masseroni merely discloses “Three bits are foreseen for the USF field that enable to unambiguously discriminate up to eight users sharing a time-slot” (Masseroni: page 9, paragraph [0038])(emphasis added) As previously recognized by

Applicants clearly multiple users are able to share a single time slot in the communication system. However, Masseroni merely discloses using three bits to “discriminate” up to a total of eight users so as to uniquely identify each user. The reference is silent as to “identifying a number of parallel subscribers in used timeslots based on the additional information.”

The Examiner appears to acknowledge this deficiency by thereafter stating “Furthermore, it is apparent that the number of parallel users must be identified because in order for the communication system and network to function properly i.e. to allocate resources, perform load balancing and account for interference it must know and identify the number of simultaneous users it is serving.” (April 25 2007 Final Office Action: page 2, lines 13-16) Applicants respectfully disagree with the Examiner’s position that the number of parallel users for a particular time slot “must be identified because in order for the communication system and network to function properly.” Instead, as referred to in paragraph [0009] of the present application, “Modern measurement, evaluation, and rating systems, subsequently referred to simply as measurement systems, allow conclusions relating to the used channel coding scheme and the number of the used timeslots. However, today’s measurement systems lack the option of evaluating the multiuser behavior on the transmission channels (timeslots).” In addition, the features of allocation of resources, load balancing and accounting for interference referred to by the Examiner as necessary for a communication system to function properly are addressed through the use of radio link protocols without having to rely on the identity and number of simultaneous users being served. “Special protocols in the radio link are responsible for preventing collisions in the channel during packet allocation and for allocating the transmission capacity to the various subscribers.” (Present Application: paragraph [0002]) The identification of the number of parallel users in accordance with the present invention is advantageous in that it increases throughput (bit rate) during data transmission (see paragraph [0005] of the present application), but contrary to the Examiner’s assertion a determination of the number of parallel users is not necessary for the communication system to operate and function properly. If the Examiner still disagrees, Applicants request that a prior art reference be provided expressly stating that an identification of the number of parallel users is necessary for the communication system to operate and function properly. Accordingly, Applicants submit that the Examiner has failed to establish that Masseroni either expressly or inherently discloses or suggests “identifying

a number of parallel subscribers in used timeslots based on the additional information”, as found in claim 21.

Claim 29 is the apparatus counterpart of independent claim 21 and thus patentable over the prior art of record for at least the reasons expressed above with respect to claim 21.

Dependent Claim 22

Claim 22 calls for (i) “comparing at the beginning of a Temporary Bit Flow (TBF) the number of the used Radio Link Control (RLC) blocks with an actually available and hence usable number of RLC blocks” (emphasis added).

The Examiner maintains that this limitation is disclosed in Masseroni et al. (Paragraphs [0064-0071]). Applicants respectfully traverse the Examiner’s rejection. Masseroni et al. discloses the following parameters or variables: LLC frames allocated for buffered connections DL_TBF for the downlink transfer; LLC frames allocated for buffered connections UL_TBF for the uplink transfer; DL_NumBlocks_TBF_transmit value for each DL_TBF connection; UL_NumBlocks_TBF_transmit value for each UL_TBF connection; RLC/MAC blocks for all downlink TBF; and RLC/MAC blocks for all uplink TBF. All of these values represent allocated, available or the usable number of frames or blocks. Masseroni et al. therefore fails to detect the number of used RLC blocks, much less, a comparison between the number of used RLC blocks with those RLC blocks that are actually available and usable, as found in claim 22.

The Examiner in his response to Applicants’ arguments with respect to claim 22 maintains that “Masseroni disclose this limitation where he discusses the RLC blocks that are allocated to the uplink and downlink are compared with the RLC blocks stored in a buffer.” (April 25, 2007 Final Office Action: page 2, line 20 through page 3, line 2) Masseroni et al. does not teach storing in a buffer the number of used RLC. The Examiner has failed to expressly state which parameter in Masseroni et al. reads on the stored number of RLC blocks in a buffer. Nevertheless, the only stored buffer parameters in the cited passage are (i) “buffer DL_TBFicon (i= 1,...,n)” which “is used to contain the queue of RLC/MAC blocks, either data or control ones, the network intends to downlink transmit towards the mobile i” and further states the “DL_TBFi buffer physically contains the RLC/MAC radio blocks that have to be transmitted when the TBFi is scheduled.”; and (ii) “buffer UL_TBFicon (i=1,..., n)” which “is used to contain the CVi

number of the RLC/MAC blocks, either data or control ones, the network intends to transmit in uplink towards the network.” (Masseroni et al.: paragraph [0068])(emphasis added) The “CV number” is defined as “Countdown values CV (Countdown Value) indicative of the state of buffered connections UL_TBF allocated for the uplink transfer.” (Masseroni et al.: paragraph [0065])(emphasis added) Therefore, neither of these buffer values represent the number of used RLC blocks. Applicants therefore submit that the prior art reference fails to disclose or suggest (i) the number of used RLC blocks; or (ii) a comparison of these two buffer values with the actual RLC blocks. If the Examiner disagrees with this interpretation then Applicants request that the Examiner expressly state which parameter reads on the number of used RLC blocks stored in a buffer, as well as, where specifically in the Masseroni et al. reference a comparison is made between this value and the actual number of RLC blocks.

In addition, claim 22 also expressly requires the step of “identifying a number of parallel subscribers in used timeslots based on the additional information contained in the RLC blocks”. In the outstanding Office Action, the Examiner asserts that Masseroni et al. [Paragraph 0038] reads on this limitation stating

“the network assigns each TBF connection a TFI (temporary flow identity) and that the MS assume that the TFI value is unique among TBF competitors in each direction, uplink or downlink. Masseroni further discloses that a RLC data block is identified to the TBF to which it is associated through its own field [sic] and another field to indicate uplink or downlink direction of the block. Note that since the TFI value is unique it can be used to determine the number of current parallel subscribers in the timeslots.” (April 25, 2007 Final Office Action: Page 6, ll. 2-8)

The relevant passage from Masseroni et al. cited by the Examiner is reproduced below:

“A TBF [Temporary Block Flow] is kept alive only for the duration of the transfer of one or more LLC protocol units to the right purpose of transferring the corresponding RLC/MAC blocks. The network assigns each TBF connection its own temporary identifier, called TFI (Temporary Flow Identity). The MS mobile shall assume that the TFI value is unique among TBF competitors in each direction, uplink or downlink. A RLC/MAC data block is identified to the TBF to which it is associated through its own field where the identifier TFI is written, and another field to indicate the uplink or downlink direction of the block.” [Paragraph 0038](emphasis added)

First, Masseroni et al. states that the MS mobile must assume that the TFI value is unique among TBF competitors in each direction, uplink or downlink, but fails to expressly state in actuality that this in fact must be the case. In addition, as expressly recognized in Masseroni et

al., more than one block may be associated with any one TBF connection. Since each TBF connection is assigned a TFI value then more than one block associated with a single TBF connection may be assigned to the same TFI value. Accordingly, the mere association of a unique TFI value associated with a particular TBF connection would at best account for only a single subscriber for a single TBF or timeslot and not identify multiple parallel or simultaneous subscribers in used timeslots, as called for in claim 22. The Examiner maintains his rejection of claim 22, but has failed to respond to this argument by Applicants. Therefore, should the Examiner maintain the prior art rejection, Applicants respectfully request that the Examiner provide reasons why this additional basis for distinguishing over the prior art reference is not persuasive.

Dependent Claim 23

Claim 23 includes the step of “evaluating parameters Uplink Status Flag (USF) and/or Temporary Flow Identifier (TFI) as additional information”. The terms USF and TFI are recognized terms in the art associated with GPRS systems. Masseroni et al. being directed to a GSM-GPRS system also employs an Uplink State Flag (USF) and Temporary Flow Identifier (TFI), however, the reference fails to disclose or suggest the use of these flags specifically for the detection of parallel subscribers in used timeslots, as found in claim 21, from which claim 23 depends. The Examiner maintains his rejection of claim 23, but has failed to respond to Applicants’ arguments. Therefore, should the Examiner maintain the prior art rejection, Applicants respectfully request that the Examiner provide reasons why the arguments presented herein are not persuasive.

Dependent Claim 24

Claim 24 further calls for the step of “determining for the duration of an uplink TBF, how many USF’s are allocated by the network side”. The relevant passages of Masseroni et al. (Paragraphs [0068 & 0072-0073]) referred to by the Examiner recognize the use of USF flags during uplink and storage in queues of these flags or those USF flags valid for uplink scheduling. Once again, the prior art reference fails to disclose or suggest determining the number of USF’s allocated by the network side, much less, making this determination for the duration of the uplink

TBF, as found in claim 24.

The Examiner in his response to Applicants' arguments with respect to claim 24 maintains that "Masseroni however discloses this limitation where it is discussed that the number of USFs in queues that are allocated to uplink and downlink transmission." (April 25, 2007 Final Office Action: page 3, lines 6-7) The relevant text from which the Examiner is relying is found in paragraph [0072] of Masseroni et al. which reads "Each UL_Buffer_TS(j) buffer of the third group contains the queues of the USFi Flags of one or more buffers UL_TBFi scheduled for the uplink transmission of the next RLC blocks, following a filling strategy that shall be indicated in detail describing Figure 22b." Thus, the Examiner has improperly stated this passage of the prior art reference which does not disclose the storage in the buffer of the number of USF flags, but instead, each of these buffers UL_TBFi contains the queues of the USF flag themselves.

Dependent Claim 25

Similarly, claim 25 calls for "determining for the duration of a downlink TBF, how many USF's are allocated by the network side" (emphasis added). This claim is patentable over the prior art reference for the reasons provided above with respect to claim 24. Furthermore, Paragraphs [0068] & [0072]-[0073] of Masseroni et al. cited by the Examiner are directed to uplink transmission, rather than downlink transmission. Lastly, the Examiner concludes "that since USF are sent on the downlink RLC blocks, the USF is considered to be determined [sic] on the duration of the downlink TBF". (April 25, 2007 Final Office Action: page 7, lines 2-3) Applicants wish to draw the Examiner's attention to Masseroni et al. which discloses [Paragraph 0094] that "The uplink case does not require particular measures, is treated without entering any USF in the RLC block to transmit, while in the downlink case the program transmits a Dummy control block, possibly with USF inserted, and proceeds to the next iteration." Accordingly, it is improper for the Examiner to conclude that "the USF is considered to be determined on the duration of the downlink TBF".

Even, assuming *arguendo* that the Examiner's assertion is correct, Masseroni et al. does not disclose tabulating or keeping track of the number of USF's allocated by the network side, much less, doing so for the duration of a downlink TBF. The mere fact that these values are capable of being tabulated without disclosing such is not a proper *prima facie* case of

obviousness. Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) Therefore, Applicants submit that the prior art of record fails to disclose or suggest “determining for the duration of a downlink TBF, how many USF’s are allocated by the network side”.

The Examiner in his response to Applicants’ arguments with respect to claim 25 maintains that “Masseroni however discloses this limitation where it is discussed that the number of USFs in queues that are allocated to uplink and downlink transmission.” (April 25, 2007 Final Office Action: page 3, lines 6-7) This same argument was presented by the Examiner with respect to claim 24 and thus is traversed for the same reasons addressed above with respect to claim 24.

Dependent Claim 27

Claim 27 specifies “determining in a static allocation process, the usage of the timeslots for the RLC blocks by counting the data frames”.

Masseroni et al. is directed to a procedure for the scheduling of packet data transmission permits on radio channels shared by the mobiles in GSM-GPRS systems (Paragraph [0001]) and is limited exclusively to dynamic, rather than static, allocation of resources (see Paragraphs [0036]-[0037]). Accordingly, no motivation exists for modifying Masseroni et al. based on the teachings of Lintulampi et al. or any other reference related to static or fixed allocation.

In addition, Applicants submit that Lintulampi et al. is silent whatsoever regarding counting the number of data frames. The Examiner nevertheless asserts that “Lintulampi et al. discloses RLC blocks sent from mobile station to the network. During this operation the network acknowledges the receipt of every RLC block and thus knows the number of data frames that were used. Therefore, it is apparent that the network can determined the usage of the timeslots (*figure 4, column 8 line 65-column 9 line 45*).” (April 25, 2007 Final Office Action: page 9, line 20 through page 10, line 2)

The Examiner in his response to Applicants’ arguments with respect to claim 27 maintains that “Masseroni however, discloses counting the number of RLC blocks and therefore the number of frames.” (April 25, 2007 Final Office Action paragraph, page 3) First, the mere

acknowledgement of receipt of an RLC block as taught by Masseroni is not equivalent to the counting the number of RLC blocks. Second, the Examiner has failed to provide any reference supporting or teaching the proposition that the data frames used may be determined based on the number of RLC blocks acknowledged as being received. To the contrary, in a GSM communication network, a data packet that is to be transmitted is divided by the LLC layers into one or more LLC frames, which in turn are then segmented into RLC data blocks. Accordingly, the number of frames is not equivalent to the number of RLC blocks.

Lastly, even assuming, *arguendo*, that the used data frames may be identified, neither reference either alone or in combination thereof discloses the counting of such frames much less that the number of data frames may be used to determine the usage of the timeslots for the RLC blocks, as found in claim 27. The Examiner acknowledges this by stating that “the network *can* determine the usage of the timeslots” despite the reference failing to disclose or suggest this limitation. Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) Accordingly, the Examiner has failed to establish a *prima facie* case of obviousness.

Dependent Claim 28

Claim 28 includes the step of “evaluating for the entire lifetime of the respective uplink TBF and/or downlink TBF, the RLC data as well as the RLC/MAC control blocks for all TBF's in existence at that time and in all timeslots allocated to the respective TBF”. Thus, two parameters must be evaluated: (i) the RLC data and RLC/MAC control blocks in existence at that time; and (ii) the RLC data and RLC/MAC control blocks in all timeslots allocated to the respective TBF.

Despite the fact that Masseroni et al. recognizes the allotted RLC data and the RLC/MAC control blocks, the prior art reference does not disclose or suggest such evaluation of the RLC data and RLC/MAC control blocks in existence at that time. In addition, claim 28 further calls for the step of “determining based on these data if a multiuser operation has occurred at the time of the data transmission”. As presented above in the arguments with respect to the preceding claims, Masseroni et al. fails to disclose or suggest the identification or detection of multiuser

operation, as found in claim 28.

The Examiner in his response to Applicants' arguments with respect to claim 28 maintains that "Masseroni however discloses this limitation where it is discussed that the RLC are monitored for uplink and downlink transmission." (April 25, 2007 Final Office Action: page 3, lines 10-11) Applicants request that the Examiner expressly refer by column and line number where Masseroni et al. teaches (i) evaluation of the RLC data and RLC/MAC control blocks in existence at that time; and (ii) determining based on these data if a multiuser operation has occurred at the time of the data transmission".

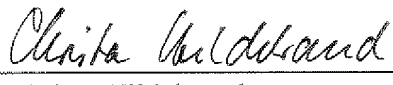
CONDITIONAL PETITION FOR EXTENSION OF TIME

If entry and consideration of the amendments above requires an extension of time, Applicants respectfully request that this be considered a petition therefor. The Assistant Commissioner is authorized to charge any fee(s) due in this connection to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account No. 14-1263.

Respectfully submitted,
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